Appendix II

Pending Claims

CLAIMS

1. A method for detecting the presence of a folded target in a sample, comprising:
    a) providing:
        i) a sample suspected of containing a folded target having a deoxyribonucleic acid sequence comprising one or more double stranded regions and one or more single stranded regions; and
        ii) a plurality of oligonucleotide probes complementary to at least a portion of said folded target; and
    b) mixing said folded target and said plurality of probes under conditions such that said plurality of probes hybridize to said folded target to form probe/folded target complexes; and
    c) detecting said probe/folded target complexes to detect the presence of said folded target in said sample.

3. The method of Claim 1, further comprising quantitating the amount of probe/folded target complex formed to detect the presence of said folded target in said sample.

4. The method of Claim 1, wherein said plurality of probes in said probe/folded target complexes are hybridized to single stranded regions of said folded target.

5. The method of Claim 1, wherein at least one of said plurality of probes comprises an oligonucleotide having a moiety that permits its capture by a solid support.

6. The method of Claim 5, wherein said detecting said probe/folded target complexes comprises exposing said probe/folded target complexes to a solid support under conditions such that said oligonucleotide having a moiety is captured by said solid support.

7. The method of Claim 6, wherein said moiety comprises a biotin moiety and said solid support comprises a surface having a compound capable of binding to said biotin moiety, said compound selected from the group consisting of avidin and streptavidin.

8. The method of Claim 1, wherein said folded target is labelled.

9. The method of Claim 1, wherein said folded target comprises a deoxyribonucleic acid sequence having a moiety that permits its capture by a solid support.

10. The method of Claim 9, wherein said detecting said probe/folded target complexes comprises exposing said probe/folded target complexes to a solid support under conditions such that said folded target is captured by said solid support.

11. The method of Claim 10, wherein said moiety comprises a biotin moiety and said solid support comprises a surface having a compound capable of binding to said biotin moiety, said compound selected from the group consisting of avidin and streptavidin.

12. The method of Claim 1, wherein at least one of said plurality of probes is labelled.

13. The method of Claim 1, wherein at least one of said plurality of probes is attached to a solid support.

14. The method of Claim 1, wherein said folded target nucleic acid is attached to a solid support.

15. A method, comprising:

a) providing:

i) a first folded target having a nucleic acid sequence comprising first and second portions, said first and second portions each comprising one or more double stranded regions and one or more single stranded regions;

ii) a second folded target having a nucleic acid sequence comprising a first portion that is identical to said first portion of said first folded target and a second portion that differs from said second portion of said first folded target because of a variation in nucleic acid sequence relative to said first folded target, said first and second portions each comprising one or more double stranded regions and one or more single stranded regions;

iii) first and second oligonucleotide probes, said first oligonucleotide probe complementary to said first portion of said first and second folded targets and said second oligonucleotide probe complementary to said second portion of said first and second folded targets; and

iv) a solid support comprising first, second, third and fourth testing zones, each zone capable of capturing and immobilizing said first and second oligonucleotide probes;

b) contacting said first folded target with said first oligonucleotide probe under conditions such that said first probe binds to said first folded target to form a probe/folded target complex in a first mixture;

c) contacting said first folded target with said second oligonucleotide probes under conditions such that said second probe binds to said first folded target to form a probe/folded target complex in a second mixture;

d) contacting said second folded target with said first oligonucleotide probe

to form a third mixture;

e) contacting said second folded target with said second oligonucleotide probe to form fourth mixture; and

f) adding said first, second, third and fourth mixtures to said first, second, third and fourth testing zones of said solid support, respectively, under conditions such that said probes are captured and immobilized.

16. The method of Claim 15, wherein said first probe in step d) does not substantially hybridize to said second folded target.

17. The method of Claim 15, wherein the hybridization of said first probe in step d) to said second folded target is reduced relative to the hybridization of said first probe in step c) to said first folded target.

18. The method of Claim 15, wherein said first and second targets comprise DNA.

19. The method of Claim 15, wherein said first and second oligonucleotide probes comprise DNA.

20. A method, comprising:

a) providing:

i) a first folded target having a nucleic acid sequence comprising first and second portions, said first and second portions each comprising one or more double stranded regions and one or more single stranded regions;

ii) a second folded target having a nucleic acid sequence comprising a first portion that is identical to said first portion of said first folded target and a second portion that differs from said second portion of said first folded target because of a variation in nucleic acid sequence relative to said first folded target, said first and second portions each comprising one or more double stranded regions and

one or more single stranded regions;

iii) a solid support comprising first and second testing zones, each of said zones comprising immobilized first and second oligonucleotide probes, said first oligonucleotide probe complementary to said first portion of said first and second folded targets and second oligonucleotide probe complementary to said second portion of said first and second folded targets; and

b) contacting said first and second folded targets with said solid support under conditions such that said first and second probes hybridize to said first folded target to form a probe/folded target complex.

21. The method of Claim 20, wherein said contacting of step b) comprises adding said first folded target to said first testing zone and adding said second folded target to said second testing zone.

22. The method of Claim 21, wherein said first and second probes are immobilized in separate portions of said testing zones.

23. The method of Claim 22, wherein said first probe in said second testing zone does not hybridize to said second folded target.

24. The method of Claim 22, wherein said first probe in said second testing zone hybridizes to said second folded target with a reduced efficiency compared to the hybridization of said first probe in first testing zone to said first folded target.

25. The method of Claim 20, wherein said first and second folded targets comprise DNA.

26. The method of Claim 20, wherein said first and second folded targets comprise RNA.

27. The method of Claim 20, wherein said first and second oligonucleotide probes comprise DNA.